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ABSTRACT

With Swedish help, industrial education courses in wood technology, wood technology/metal technology, and power mechanics/electrical technology have been introduced into 35 Kenyan government-maintained secondary schools. The programs received Swedish assistance from 1969 to 1981. An evaluation has revealed that the aims and objectives of the programs are ambiguous; the general aims are defined as part of general education, whereas the objectives and content specific to each subject syllabus imply a prevocational type of training. All four types of workshops have expensive and relatively sophisticated equipment, but there does not appear to have been any concern for the suitability of the equipment as a prototype or for the feasibility of its wide-scale implementation. Although students, parents, and teachers tend to see the programs as prevocational, the teachers involved complain that the programs are unknown among employers. The programs enjoy a rather high status in most schools and thus do not seem to be repositories for less academically successful students. The programs' teachers use a highly didactic pedagogy and emphasize precision in the execution of tasks and procedures. This conflicts with program aims stressing the importance of creativity and teaching students to work independently. The labor market advantage of completing one of the programs is questionable, and employers appear to be more aware of the country's technical secondary schools. Neither is the high cost of the industrial education programs likely to help the courses when their long-term future is assessed. (MN)

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PRACTICAL SUBJECTS IN KENYAN ACADEMIC SECONDARY SCHOOLS

A Summary of the General Report

Jon Lauglo

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PRACTICAL SUBJECTS IN KENYAN ACADEMIC SECONDARY SCHOOLS.

A SUMMARY OF THE GENERAL REPORT

by Jon Lauglo

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To date, the main publications are:

Jon Lauglo, Practical Subjects in Kenyan Academic Secondary Schools. General Report. Stockholm: Swedish International Development Authority, Education Division documents No. 20, 1985.

Anders Närman, Practical Subjects in Kenyan Academic Secondary Schools. Tracer Study. Stockholm: Swedish International Development Authority, Education Division documents No. 21, 1985.

Christopher Cumming, Martin Davies, Kevin Lillis, Ben Nyagah, Practical Subjects in Kenyan Academic Secondary Schools. Background Papers. Stockholm: Swedish International Development Authority, Education Division documents No. 22, 1985.

Swedish International Development Authority (SIDA)
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October, 1985

This report evaluates the 'Industrial Education' (IE) subjects which have been introduced with Swedish assistance into 35 Kenyan government-maintained secondary schools. Wood Technology/Metal Technology is taught as a combination at 24 schools, Wood Technology at one school, and the Power Mechanics/Electrical Technology combination is taught at 10 schools. Each of these four IE subjects requires its own especially equipped workshop. Thus, each school is (with one exception) provided with two IE workshops. In these schools IE is usually compulsory in Forms I and II. In Forms III and IV it is an option that is usually available to about one third of the students, and which prepares for the lower secondary ('O' Levels) examination in an IE subject. Nearly all IE students are boys. In each Form, students usually devote about 6 weekly class periods to IE - only a small portion of their weekly timetable of some 45 class periods. IE is only taught in the lower secondary stage. Students prepare at least 6 subjects for the 'O' Level Kenya Certificate of Education (KCE) examination. IE would be only one of these. IE thus functions as a 'practical' supplement to an otherwise entirely 'academic' course. It does not continue as a subject in the upper secondary stage. Nor does it confer any officially recognized qualification or priority for selection to jobs or training schemes. The one exception is teacher training in IE itself, and access to such training also requires upper secondary credentials.

IE received Swedish assistance from 1969 to 1981 in various forms: Swedish volunteers provided initial staffing of IE in the schools; SIDA established and initially staffed teacher education in IE, and built/renovated and equipped/upgraded IE workshops. It also established a Maintenance Unit to provide support for, i.a., these workshops. It is estimated that more than K Shs 50 Million (S.Kr. 30 Million) was spent by SIDA on aid to the development of IE.

The Evaluation activities have been carried out by an international team. The sources of data have been: documentation, examination results, interviews with Kenyan and SIDA officials, observation of workshops and equipment during visits to most IE schools, and a number of surveys which used a mixture of group interviews, individual interviews and questionnaires. These groups were surveyed: headmasters of IE schools, Swedish former volunteer teachers of IE, Kenyan IE teachers and teachers of other subjects, parents of IE students, employers and groups of students with varying degrees of exposure to IE (4 years of IE, 2 years of IE, no IE). The student surveys included several small scale tracer studies and one large scale follow-up of students one year after the lower secondary (KCE) examination.

The Evaluation seeks to answer a series of questions: What are the aims and objectives of IE? What has the international experience been with similar subjects? What influences have shaped the development of IE in Kenya? How do the schools offering IE compare with other secondary schools? What do students, parents, teachers and headmasters expect from IE? What is the status of IE in the schools? Do the various IE subjects differ in their attractiveness to students? What kind of student takes IE as an examination subject? Is IE a 'soft option' that attracts students because it is thought to be easy to pass/do well in? How do IE teachers compare with 'academic' teachers in terms of rated competence and professional morale? How are the practical skills taught and how does the

style of teaching accord with the declared aims of IE? What do IE teachers perceive to be the greatest problems related to IE and to their own job? What role did the Swedish volunteer teachers play in developing IE in the schools? What is the condition of workshops, equipment and tools? Are the provided facilities utilized sufficiently fully? Is the level of equipment too advanced? What happens to IE students after lower secondary school? What uses do they have of IE? In particular, does IE help them in earning a living? How does IE compare with other subjects in terms of recurrent costs and development costs? What has SIDA spent on aid to IE and what have these expenditures been devoted to?

The main findings relating to these questions are as follows:

1. The aims and objectives of IE are fraught with ambiguity. The general aims define IE as part of general education; but the objectives and contents specific to each subject syllabus imply training of a pre-vocational type.

2. Early Canadian influence on curriculum and equipment levels has been important in defining the IE subjects. Yet, it was SIDA - not CIDA - that helped finance the implementation of IE in the 35 schools. The tightly structured syllabuses which have evolved in IE accord with the general pattern of high syllabus specification in Kenyan secondary schools.

3. All four types of IE workshops have expensive and relatively sophisticated equipment. There appears to have been no discussion, at the time when equipment levels were decided, about the suitability of such equipment as prototypes for what might later be introduced in a large number of schools. Nor does it seem as if the financial and logistics implications of any large scale implementation were considered. Yet, unless IE were clearly defined as vocational education (which it is not), it is difficult to see how such a limited introduction of IE would accord with equity considerations.

4. IE was introduced disproportionately in schools of relatively high academic standing. Also, the IE schools are disproportionately concentrated in or near the main urban areas, particularly Nairobi. This may have eased the implementation of IE but has at the same time probably had the result that IE is on offer disproportionately to youth from more urbanized and more educated homes, than what is the case for secondary school students in general.

5. Students, parents, and teachers tend to see IE as a pre-vocational subject, rather than as part of general education. They hope that IE will give an advantage in the search for a job. Yet, IE teachers also complain that IE is unknown among employers and that it lacks associated opportunity after 'O' Levels.

6. IE is not perceived as a 'soft option' by teachers and headmasters. It is in fact more difficult to do well in IE at the KCE examination, than in such core academic subjects as Mathematics and English.

7. The status of IE is quite high in the great majority of schools in terms of (a) teachers' ratings of IE's popularity, (b) students' and parents' attitudes to IE, and (c) the academic performance of those students who take IE as an examination subject. Other practical subjects which are taught in some IE schools (business subjects and

agriculture) also seem to hold their own in terms of attracting their share of academically able students. Thus, these practical options are not at all repositories for students who are 'academic rejects'.

8. Very few IE teachers have had any experience of other paid practical work that has helped prepare them for IE teaching. But they are by their headmasters rated to be on par with - or better than - their 'academic' colleagues in terms of competence in teaching their respective subjects. The IE teachers also seem to be quite stable in their jobs. They do not suffer from any greater problems of low professional morale than other teachers.

9. The IE teachers use a highly didactic pedagogy. What is emphasized - and what is also rewarded in the IE examination - is precision in execution of tasks and procedures which are specified in great detail by the teacher. This would conflict with those IE aims which stress the importance of creativity and of teaching students to work independently.

10. Only at very few schools do the IE teachers show any initiative in organizing student practical projects which would benefit the school as a whole. This is rejected on the grounds that such projects would be incompatible with the requirements of syllabuses and examinations.

11. Teachers often worry about the fairness of the examination.

12. The contribution (until 1981) of Swedish volunteer teachers is especially valued with respect to workshop establishment, maintenance, and repair - the very areas where Kenyan IE teachers declare themselves to be relatively weak.

13. It is the large schools which utilize IE facilities most fully in terms of student periods and teaching periods. Yet, in other schools (3 streams or less) the IE facilities are often utilized less intensively than what is implied by recommended timetables and the number of student places provided. Eight out of 27 schools surveyed used the workshop facilities 75% or less as compared with the intended utilization.

14. Most headmasters claim that the money earmarked for IE workshop materials and routine maintenance (K Shs 80 per student per annum) is insufficient. But if IE teachers are used as the source, at 14 out of 33 schools less than the earmarked amount is actually spent. In 9 of these schools the teachers complain that it is difficult to obtain release from the headmaster or bursar of the officially stipulated amount.

15. Up to 95% of the workshop buildings were found to be in an adequate state of repair. But 9 out of 39 workshops surveyed are inadequate in terms of the general state of repair of tools and/or machines.

16. Most IE teachers do not think that the Maintenance Unit, which has been established to assist IE schools and other institutions, meets their need adequately. The recurrent complaint is that repairs take too long. The Unit does not fulfill its originally intended function of being a regular supplier of materials for the workshops.

17. The expense of IE, its complex logistics requirements, and the reported uses of IE skills after school all indicate that IE should be simplified in terms of equipment if it were to be introduced in other schools. But very few IE teachers would agree with such simplication. Rather, they stress the need not to dilute the quality of the subject. There is a risk that such simplication of IE (e.g., handtools only) would impair to some unknown degree the present satisfactory status of IE in most schools.

18. One year after 'O' Levels, students with greater exposure to IE possess no advantage over others in finding employment. Hardly anyone is self-employed after one year. For those who do not stay on in school, the search for employment is so difficult that most remain unemployed after one year. Among those who find employment, most former IE students do not obtain jobs that seem to relate to IE in terms of skill requirements.

19. It appears that the overall quality of 'O' Level results or even whether a person failed or passed their KCE exam gives no labour market advantage in the first year after 'O' Levels.

20. The evidence from a few schools where longer term tracing of former IE students was conducted (more than one year) shows that self-employment, when it does occur, very much tends to be only of episodic character.

21. A small scale exploratory survey of employers suggests that those who hire persons with an IE background are sometimes unaware of having done so. Compared to IE, technical secondary schools are more salient in the employers' awareness. But many employers remain unconvinced that school-based practical or vocational training is the best preparation for skilled practical work.

22. The great majority of former IE students value the skills learned in IE and claim that these skills have been useful to them. Repairing or constructing articles at home or for neighbours and relatives are the main reported uses, according to the large scale follow-up study.

23. The great majority of IE students (like others) hope to continue to upper secondary school. Yet, they do aspire to work of a technical or practical kind. Statistically, interest in such work increases strongly with greater exposure to IE. It is reasonable to conclude that IE does have an effect on students' occupational attitudes. But there is no shortage of interest in technical/practical work, not even among those with no exposure to IE. More students would like to enter such jobs than the number of students expecting to eventually find such work. The opposite is true for school teaching.

24. Kenyan secondary schools have come under increasing financial pressure in recent years. This does not augur well for headmasters taking a long term view when they assess the requirements of IE workshops.

25. IE is expensive. A major reason is the small classes. It is typically taught to groups of 20 students or less. In terms of teaching expenses and supplies it is at least twice as expensive as other school subjects.

26. The differential between IE and 'academic' subjects is greater in terms of capital costs per student place. The cheapest IE subject (Power Mechanics Technology) is about 2½ times as expensive as Science, because IE has smaller classes and more expensive equipment. It is at least 8 times more expensive than a subject like Mathematics or Kiswahili in terms of initial development costs per student place.

27. There is very little difference in initial development costs for the two IE subject combinations which are found in the schools (Wood/Metal and Power/Electricity). But taken as individual subjects, Metal Technology and Electrical Technology are 40 - 50% more expensive than the other two. One notes that the relative cost of the four subjects does not directly reflect the level of associated technology of the four IE subjects.